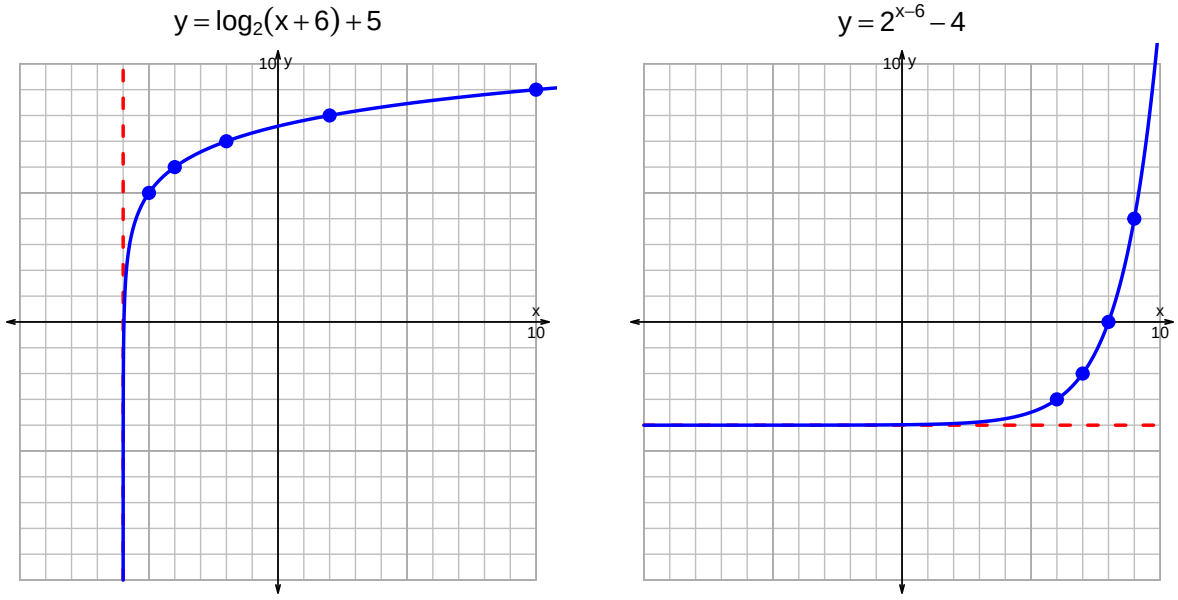
Name: Date:

s18quiz: EXP LOG (Solution v149)

1. Graph $y = \log_2(x+6)+5$ and $y = 2^{x-6}-4$ on the grids below. Also, draw any asymptotes with dotted lines.



2. Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$-11 = \left(\frac{-3}{4}\right) \cdot 10^{7t/5}$$

Divide both sides by $\frac{-3}{4}$.

$$\frac{11 \cdot 4}{3} = 10^{7t/5}$$

Take log, base 10, of both sides.

$$\log_{10}\left(\frac{11 \cdot 4}{3}\right) = \frac{7t}{5}$$

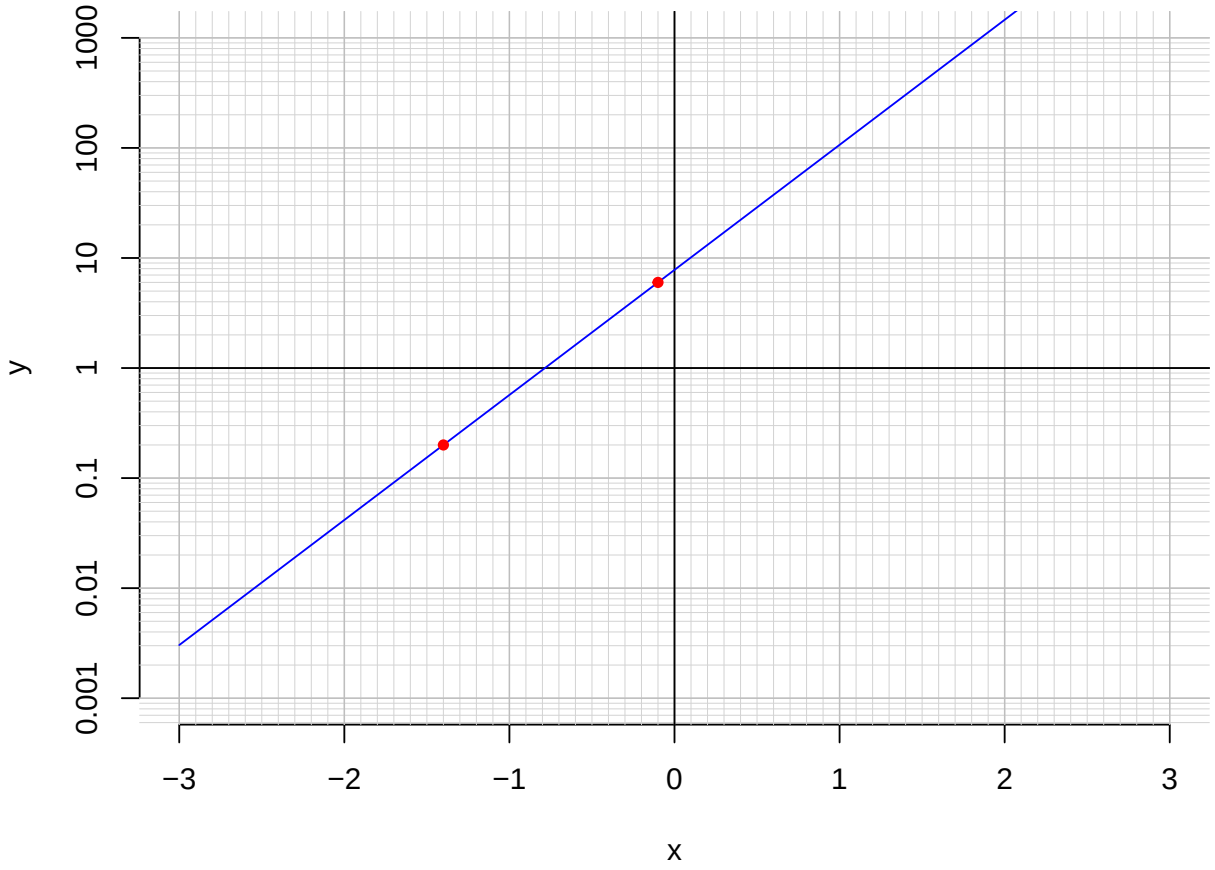
Divide both sides by $\frac{7}{5}$.

$$\frac{5}{7} \cdot \log_{10}\left(\frac{11 \cdot 4}{3}\right) = t$$

Switch sides.

$$t = \frac{5}{7} \cdot \log_{10}\left(\frac{11 \cdot 4}{3}\right)$$

3. An exponential function $f(x) = 7.79 \cdot e^{2.62x}$ is graphed below on a semi-log plot.



a. Using the plot above, evaluate $f(-1.4)$.

$$f(-1.4) = 0.2$$

b. Express $f^{-1}(x)$, the inverse of f.

$$f^{-1}(x) = \frac{1}{2.62} \cdot \ln\left(\frac{x}{7.79}\right)$$

c. Using the plot above, evaluate $f^{-1}(6)$.

$$f^{-1}(6) = -0.1$$